

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) A method of purifying impure water contaminated with a filterable impurity and a dissolved impurity, the method comprising the steps of:
providing the impure water to a primary microfiltration or ultrafiltration unit to remove the filterable impurity and produce impure filtered water contaminated with a the dissolved impurity;
providing the impure filtered water contaminated with a the dissolved impurity to a reverse osmosis unit to produce a potable water stream and a residual reverse osmosis stream;
filtering the residual reverse osmosis stream by passing the stream through a secondary filter to produce a filtrate; and
backwashing the primary microfiltration or ultrafiltration unit with the filtrate.
2. (Previously presented) The method according to claim 1 wherein the secondary filter is a microfiltration or ultrafiltration membrane.
3. (Previously presented) The method according to claim 2 wherein the secondary filter is backwashed.
4. (Previously presented) The method according to claim 1 wherein the secondary filter is a cartridge filter.
5. (Previously presented) The method according to claim 4 wherein the secondary filter is backwashed.
6. (Previously presented) The method according to claim 1 wherein the impure water is sea water.

7. (Previously presented) The method according to claim 1 wherein the filterable impurity includes those typically found in sea water.
8. Cancelled.
9. Cancelled.
10. (Previously presented) The method according to claim 1 wherein the dissolved impurity includes sodium ions and chloride ions.
11. (Previously Presented) The method according to claim 1 further comprising treating the residual reverse osmosis stream prior to backwashing by one or more of a chemical treatment, a radiation treatment or a physical treatment.
12. (Previously Presented) The method according claim 11 wherein the chemical treatment is selected from the group consisting of chlorination, fluorination, disinfection, scale control treatment, water softening, peroxide, sulfite/bisulfite, ozone and combinations thereof.
13. (Previously Presented) The method according to claim 11 wherein the radiation treatment is selected from the group consisting of UV, IR, microwave and combinations thereof.
14. (Previously Presented) The method according to claim 11 wherein the physical treatment is selected from the group consisting of ultrasonication, vortexing, and combinations thereof.
15. (Previously Presented) The method according to claim 11 wherein the treatment is selected from the group consisting of heat, electroprecipitation, magnetic treatment and combination thereof.
16. (Previously presented) The method according to claim 1 further comprising subjecting the residual reverse osmosis stream to ultrafiltration or microfiltration by a secondary

ultrafiltration or microfiltration unit prior to the step of backwashing.

17. (Previously presented) The method according to claim 1 wherein the step of treating comprises filtering using multiple stages of filtration.

18. (Previously presented) The method according to claim 17 wherein the step of treating comprises filtering through a coarse filter prior to filtering through a membrane filter.

19. (Previously Presented) The method according to claim 18 wherein the residual reverse osmosis stream is in controllable fluid communication with a coarse backwashable filter selected from the group consisting of a single or multimedia filter, a disc filter, a diatomaceous earth filter, a membrane filter, a strainer, a screen and combinations thereof.

20. (Previously Presented) A method of facilitating the purification of impure water, comprising the steps of:

providing a primary microfiltration or ultrafiltration unit;

providing a reverse osmosis unit in downstream fluid communication from said primary microfiltration or ultrafiltration unit;

providing a secondary microfiltration or ultrafiltration unit to produce a filtrate; and

providing a controllable fluid pathway for directing the filtrate to backwash said primary microfiltration or ultrafiltration unit.

21. (Previously Presented) The method according to claim 20 wherein the filtrate has a suspended solids content of less than a predetermined quantity.

22. (Previously Presented) The method according to claim 21 wherein the filtrate has a suspended solids content sufficient to allow it to be returned to the impure water source.

23. (Previously Presented) The method according to claim 22 wherein the filtrate used to backwash the filter has a suspended solids content sufficient to allow it to be returned to the ocean.

24. Cancelled.

25. (Previously Presented) A system for purifying impure water contaminated with a filterable impurity and a dissolved impurity comprising:

a primary microfiltration or ultrafiltration unit to remove the filterable impurity;

a reverse osmosis unit to produce a potable water stream and a residual reverse osmosis stream, said reverse osmosis unit in downstream fluid communication from said primary microfiltration or ultrafiltration unit;

a controllable fluid pathway to transfer a stream of impure filtered water contaminated with a dissolved impurity from the primary microfiltration or ultrafiltration unit to the reverse osmosis unit;

means for treating the residual reverse osmosis stream to produce a treated stream; and

a controllable fluid pathway directing the treated stream to backwash the primary microfiltration or ultrafiltration unit.

26. Cancelled.

27. (Previously presented) The system according to claim 25 further comprising a controllable fluid pathway directing the residual reverse osmosis stream through a secondary microfiltration or ultrafiltration membrane to backwash the primary microfiltration or ultrafiltration unit.

28. (Previously Presented) The system according to claim 25 further comprising one or any combination of ports for the introduction of chemical agents, irradiation means, ultrasonic generators, vortexing devices, heating elements, electroprecipitators and magnets.

29. (Previously Presented) The system according to claim 28 wherein the chemical agents are selected from the group consisting of chlorination agents, fluorination agents, ozonation agents, disinfecting agents, scale control treatment agents, water softening agents, peroxide, sulfite/bisulfite, and combinations thereof.

30. (Previously Presented) The system according to claim 25 for purifying impure water contaminated with a filterable impurity and a dissolved impurity further comprising:

a conduit to transfer a residual reverse osmosis stream from the reverse osmosis unit to backwash the primary microfiltration or ultrafiltration unit via a secondary microfiltration or ultrafiltration unit.

31. (Previously Presented) The system according to claim 30 wherein the secondary microfiltration or ultrafiltration unit is a backwashable or disposable cartridge microfiltration or ultrafiltration system.

32. (Previously Presented) The system according to claim 30 wherein the secondary microfiltration or ultrafiltration unit comprises multiple stages of filtration.

33. (Previously presented) The system according to claim 32 wherein the multiple stages of filtration include a first filtration through a coarse filter prior to filtration through a membrane filter.

34. (Previously presented) The system according to claim 25 wherein the residual reverse osmosis stream is in controllable fluid communication with coarse backwashable filters such as single or multimedia filters, disc filters, diatomaceous earth filters, membrane filters, strainers, or screens.